

AST 248 (Spring 2021): Search for Life in the Universe (3 credits)

COVID-19 Remote Learning Requirements

This class is entirely online for the Spring 2021 semester. Students will need a computer for Zoom and online exams.

Any requests for special arrangement due to COVID-19 should be made to the instructor *at the start of the semester*. A request after the first midterm exam will be considered only under an *exceptional* circumstance *even by the COVID-19 standard*.

Time & Location: MW (14:40-16:00) Online Synchronous with ZOOM

Instructor: Prof. Jin Koda

Office: Room 455, Earth and Space Sciences Building

Email: jin.koda@stonybrook.edu

Office Hours: Mon & Wed 4:00-5:00 (via Zoom) or by appointment (email Prof. Koda)

Teaching Assistant: To be announced

Course Description: A study of the role of science in modern society through investigation of the question: Does/can life exist elsewhere in the universe? Topics include a review of the astronomical and biological settings; the origin of life on the earth and possibly elsewhere; the evolution of life and the development of intelligence and technology. Also discussed are the ramifications of the development of life and intelligence for the atmosphere and the biosphere.

Learning Objectives

1. Apply concepts and tools drawn from astrophysics, chemistry, and biology in order to understand the links between the science knowledge, extraterrestrial and our own life, and environment for life.
2. Synthesize quantitative and/or technical information and qualitative information to make informed judgments about the reciprocal relationship between the science knowledge, extraterrestrial and our own life, and environment for life.

Required texts & Materials:

1. Life in the Universe, 4th Edition by Bennett & Shostak. Copyright 2016. ISBN13: 978-0134089089 (3th edition is fine if you find it cheaper).

Course Grading: The grading for the course will be based on

1. Quiz (19%)

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2. Two midterm examinations (27% each)
3. Final examination (27%)

No additional point will be offered. The exams will cover material presented in class and contained within reading assignments. In accordance with University policies, it is the students' responsibility to schedule classes so as to avoid conflicts. *Check the schedule at the beginning of the semester!* All dates and times are in local time in New York.

Examinations & Quizzes:

1. **Midterm exams** will be held online in regular class time. **Final exam** will also be held online, and the date and time are determined by the University's registrars.
2. **Missed examinations:** Makeup exams will be given only on the basis of valid medical absence that can be verified by the instructor or because of Jury Duty or military service. *Students must contact the instructor before the exam.* No makeup will be allowed more than one week after the original exam date in any circumstance.
3. **Quiz questions** will be announced in class and posted on Blackboard. Students must finish them in Blackboard by the end of the class day when the questions are announced. **No makeup quiz** will be given under any circumstances; however, lowest three-week quiz scores will be dropped to accommodate unforeseen circumstances. Practice quiz will be held in the first two weeks of semester, which do not count for grading.
4. **Challenges to grades:** Challenges of any grade for an exam or quiz must be made within 5 business days of the posting of the grade. No changes will be made to a grade after that time regardless of cause.

Blackboard: All students must regularly monitor Blackboard for notices and changes to course information including the syllabus. Quiz and exam scores will be posted on blackboard.

Additional Course Policies:

- **Student Responsibilities:** You will be expected to abide by all University regulations, procedures, requirements, and deadlines as described in the *Undergraduate Student Bulletin*.
- **Attendance:** As per the University policy outlined in the *Undergraduate Student Bulletin*, students are expected to regularly attend all classes and to participate in the classroom experience.
- **Classroom Behavior and Conduct:** You are expected to conduct yourself in accordance with the minimal undergraduate student responsibilities described in the Undergraduate Student Bulletin including:
 - o You are expected to arrive for class promptly.
 - o Avoid behavior that is disruptive to the classroom especially the use of cell phones.
 - o Avoid conversations during class

- o Be familiar with material presented in previous lectures.

University Policies:

- **Student Accessibility Support Center Statement:** If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, 128 ECC Building, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center. For procedures and information go to the following website:

<https://www.stonybrook.edu/commcms/studentaffairs/sasc/accessibility/emergencies.php> and search Fire Safety and Evacuation and Disabilities.

- **Academic Integrity Statement:** Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html
- **Critical Incident Management:** Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.
- **Academic Dishonesty:** Any form of academic dishonesty, including cheating and plagiarism, will be reported to the Academic Judiciary. All parties involved (both the copier and the person who produced the original work) will be held accountable for any instance of plagiarism or dishonesty.
- **Electronic Communication:** Email to your University email account is an important way of communicating with you for this course. For most students the email address is 'firstname.lastname@stonybrook.edu'. *It is your responsibility to read your email received at this account.* For instructions about how to verify your University email address see this: <http://it.stonybrook.edu/help/kb/checking-or-changing-your-mail->

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[forwarding-address-in-the-epo](#) If you choose to forward your University email to another account, we are not responsible for undeliverable messages.

- **Religious Observances:** See the policy statement regarding religious holidays at http://www.stonybrook.edu/commcms/provost/faculty/handbook/employment/religious_holidays_policy.php

Students are expected to notify the course professors by email of their intention to take time out for religious observance. This should be done as soon as possible but definitely before the end of the 'add/drop' period. At that time they can discuss with the instructor(s) how they will be able to make up the work covered.

AST248 Tentative schedule for Spring 2021

Lecture and Exam Schedule & Reading Assignments			
Lecture	Date	Chapter	Subject
1	Feb 1	1	A Universe of Life?
2	3	1	A Universe of Life?
3	8	2	The Science of Life in the Universe
4	10	2	The Science of Life in the Universe
5	15	2	The Science of Life in the Universe
6	17	3	The Universal Context of Life
7	22	3	The Universal Context of Life
8	24	3	The Universal Context of Life
9	Mar 1		Midterm 1
10	3	4	The Habitability of Earth
11	8	4	The Habitability of Earth
12	10	4	The Habitability of Earth
13	15	5	The Nature of Life on Earth
14	17	5	The Nature of Life on Earth
15	22	6	The Origin and Evolution of Life on Earth
16	24	6	The Origin and Evolution of Life on Earth
17	29	7	Searching for Life in Our Solar System
18	31	8	Mars
19	Apr 5	8, 9	Mars/ Life on Jovian Moons
20	7		Midterm 2
21	12	9	Life on Jovian Moons
22	14	9	Life on Jovian Moons
23	19	10	The Nature and Evolution of Habitability
24	21	10	The Nature and Evolution of Habitability
25	26	11	Extrasolar Planets: Their Nature and Potential Habitability
26	28	11	Extrasolar Planets: Their Nature and Potential Habitability
27	May 3	12	The Search for Extraterrestrial Intelligence
28	5	13	Interstellar Travel and the Fermi Paradox
	13		Final Exam (11:15-1:45)